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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,832	06/22/2007	SeongWoo Suh	595242001000	8293

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EXAMINER

DOAN, JENNIFER

ART UNIT	PAPER NUMBER
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2874

MAIL DATE	DELIVERY MODE
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12/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,832	SUH ET AL.	
	Examiner	Art Unit	
	Jennifer Doan	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,9-13,15,16,19-22,24-30,32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,5-7,9-13,15,16,19-21,30,32 and 33 is/are allowed.
- 6) ☒ Claim(s) 22,24-27 and 29 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>100608</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 10/06/08 has been entered.

Information Disclosure Statement

1. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 10/6/08, have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

2. The drawings, filed on 06/22/07, are accepted.

Specification

3. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

Obvious Type Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 22, 24-27 and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10, 13, 14, 31 and 40 of U.S. Patent No. 7,454,100.

Although claims 22, 24-27 and 29 of the present invention and claims 10, 13-15, 31 and 40 of U.S. Patent No. 7,454,100 are not identical, they are not patentably distinct

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from each other because they essentially recite the same structure of a wavelength selective optical switch.

Specifically, regarding claim 22 of instant application discloses a wavelength selective optical switch comprising a polarization transformation device receiving input light having a plurality of wavelength components and outputting light of a predefined polarization (claim 10 of US Patent 7,454,100, lines 2-6); a beam expanding device for expanding said light of predefined polarization in a predetermined plane (claim 10 of US Patent 7,454,100, lines 7-8); a dispersive element receiving said expanded light of predefined polarization, and dispersing wavelength components of said expanded light of predefined polarization in said predetermined plane (claim 10 of US Patent 7,454,100, lines 9-12); a polarization conversion element receiving said dispersed wavelength components of said expanded light of predefined polarization, said polarization conversion element being pixelated generally along the direction of said dispersion such that separate pixels are associated with separate wavelength components of said expanded light, and at least one pixel of said polarization conversion element being operative to convert the polarization of light passing through said pixel according to a control signal applied to said pixel (claim 10 of US Patent 7,454,100, lines 16-24); and a reflective surface disposed in proximity to said polarization conversion element such that light is incident thereon after passing through said polarization conversion element, and is reflected back through said pixel of said polarization conversion element (claim 10 of US Patent 7,454,100, lines 33-40).

Moreover, claims 10, 13-15 and 40 in the U.S. No. 7,454,100 are either narrower version of the claims 24-27 of the instant application or obvious variations thereof.

Furthermore, regarding claim 29 of instant application discloses a wavelength selective optical switch, wherein light of said wavelength component reflected from said reflective surface is attenuated generally by said extinction ratio also in returning through said linear polarizer, such that the attenuation of said light of said wavelength component is generally proportional to the square of the extinction ratio of said linear polarizer (claim 31 of US Patent 7,454,100).

The claims are therefore **not** patentably distinct.

Allowable Subject Matter

6. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to disclose or reasonably suggest the wavelength selective optical switch comprising a linear polarizer having an extinction ratio disposed between said polarization conversion element and said reflective surface, said linear polarizer having its direction of polarization essentially parallel to that of said light of generally linear polarization, and wherein said control signal applied to said pixel is such as to rotate the direction of the polarization of light of said wavelength component passing through said pixel through essentially 90° such that said light of said wavelength

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component transmitted onwards through said linear polarizer is generally attenuated by said extinction ratio as recited in claim 28.

7. Claims 1, 5-7, 9-13, 15-16, 19-21, 30, 32 and 33 are allowed.

The prior art of record fails to disclose or reasonably suggest all the limitations of claim 1. Specifically, the prior art fails to disclose a wavelength selective optical switch comprising a polarization transformation device receiving input light having a plurality of wavelength components and outputting light of a predefined polarization; a beam expanding device for expanding the light of predefined polarization in a predetermined plane; a first dispersive element receiving the expanded light of predefined polarization, and dispersing wavelength components of the expanded light of predefined polarization in the predetermined plane; a polarization conversion element receiving the dispersed wavelength components of the expanded light of predefined polarization, the polarization conversion element being pixelated generally along the direction of the dispersion such that separate pixels are associated with separate wavelength components of the expanded light, and at least one pixel of the polarization conversion element being operative to convert the polarization of light, passing through the pixel according to a control signal applied to the pixel; a second dispersive element receiving light from the polarization conversion element, and operative to combine the separate wavelength components of the light into multi-wavelength output light; a beam compressing device aligned such that the multi-wavelength output light is compressed in the predetermined plane; and a polarization selective device receiving the

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compressed multi-wavelength output light, the polarization selective device being aligned such that only those components of the multi-wavelength output light having a predetermined polarization are transmitted therethrough.

Claims 5-7, 9-13, 15, 16 and 19-21 depend from claim 1.

The prior art of record fails to disclose or reasonably suggest all the limitations of claim 30. Specifically, the prior art fails to disclose a wavelength selective optical switch comprising a dual fiber collimator inputting a fiber optical signal having a plurality of wavelength components, and outputting the signal as light having a plurality of wavelength components; a first polarization transformation device receiving the light output from the dual fiber collimator, and outputting the light with a predefined polarization; a beam expanding device for expanding the light of predefined polarization in a predetermined plane; a dispersive element receiving the expanded light of predefined polarization, and dispersing wavelength components of the expanded light of predefined polarization in the predetermined plane; a first reflecting surface directing the dispersed wavelength components of the expanded light of predefined polarization through a polarization conversion element, the polarization conversion element being pixelated generally along the direction of the dispersion such that separate pixels are associated with separate wavelength components of the expanded light, and at least one pixel of the polarization conversion element being operative to convert the polarization of light passing through the pixel according to a control signal applied to the pixel; a second reflective surface disposed such that the wavelength components of the light of generally linear polarization, after passage through the polarization

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conversion element, are directed back through the beam expansion device and the dispersive element, the dispersive element combining the separate wavelength components of the output light into multi-wavelength output light; and a second polarization transformation device aligned such that that part of said multi-wavelength output light having the predetermined polarization is transmitted therethrough and is output from the switch through the dual beam collimator.

Claims 32 and 33 depend from claim 30.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00am to 3:30pm, second Friday off.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer Doan/

Primary Examiner, Art Unit 2874